Claims

1. A distance measuring instrument having a sighting device, comprising:

a transmitter for emitting an optical radiation;

a receiving lens for receiving optical measurement radiation remitted or scattered by an object being measured;

a receiver, located behind the receiving lens, for converting the optical measurement radiation into electrical measurement signals; and

a signal processing system for comparing the measurement signals with reference signals to determine a distance from the object being measured and to make a distance result available to a user, wherein the sighting device includes:

a photoelectric picture-taking system, which is connected to an electronic display device; and

an evaluation unit for forming a differential value for pictures taken, the photoelectric picture-taking system of the sighting device and the electronic display device being disposed in a common housing which is equipped with a separate viewfinder lens for the photoelectric picture-taking system.

2. The distance measuring instrument of claim 1, wherein the picture-taking system includes a photoelectric semiconductor component, based on CMOS design.

3. The distance measuring instrument of claim 2, wherein the photoelectric semiconductor component has a monochromatic photosensitivity, and an optical bandpass filter with a transmission in a wavelength range of the optical radiation of the distance measuring instrument is located in front of a photosensitive detection face of the photoelectric semiconductor component.

4. The distance measuring instrument of claim 2, wherein the photoelectric semiconductor component is a color camera chip, which is embodied for detecting three primary colors.

5. The distance measuring instrument of claim 2, wherein the semiconductor component, in conjunction with the evaluation unit, has an electronic zoom function.

6. The distance measuring instrument of claim 1, wherein the photoelectric picture-taking system is integrated with a separate device that has a display or a screen and can be connected, in wireless fashion, to the distance measuring instrument.

7. The distance measuring instrument of claim 1 integrated with a display, for displaying pictures taken by the photoelectric picture- taking system, which is disposed on the distance measuring instrument.

8. A method for detecting a measurement spot on an object being measured whose distance is to be determined, comprising:

lighting the object being measured, with the aid of a distance measuring instrument, using an optical radiation;

detecting a spot created on the object being measured with aid of a photoelectric picture-taking system; and

delivering the detected spot to an evaluation unit for finding a differential value, and for showing detection results on an electronic display device.

9. The method of claim 8, wherein the photoelectric picture-taking system takes at least one picture of the object being measured without, and at least one picture with, the optical radiation; and wherein in the evaluation unit, from electronically converted pictures, a differential picture is ascertained in which the spot is detected electronically; and wherein at a site of the detected spot, an electronic marking is superimposed on the picture of the object being measured that is shown on the electronic display device.

10. The method of claim 9, wherein a plurality of pictures, in rapid chronological succession, of the object being measured with and without the optical radiation are taken, and the differential pictures ascertained from them are averaged.

11. The method of claim 9, wherein during the taking of the at least one picture of the object being measured with introduced optical radiation, radiation power is synchronously increased.

12. The method of claim 8, wherein pictures are taken of the object being measured with a monochromatic picture-taking system.

13. The method of claim 12, wherein the pictures are taken with a monochromatic shooting camera with a photoelectric semiconductor component based on CMOS, and radiation detected by the picture-taking system is at least intermittently beforehand passed through a bandpass filter with a transmission in a wavelength range of the optical radiation.

14. The method of claim 8, wherein the optical radiation originating in the object being measured is detected by a color camera, and only that portion of the picture corresponding to the wavelength spectrum of the introduced optical radiation is processed.

15. The method of claim 8, wherein the optical radiation originating at the object being measured is detected with a camera that is disposed in a separate device, which

is equipped with its own evaluation unit and display device and is coupled with the distance measuring instrument.

16. The method of claim 8, wherein detection of the object being measured is done with a photoelectric picture-taking system which is integrated with the distance measuring instrument, and evaluation of signals detected is effected with an evaluation unit disposed in the instrument, and a display is effected on an electronic display device which is provided on the distance measuring instrument.

17. The distance instrument of claim 6, wherein the separate device is one of a palmtop and a laptop computer.

18. The method of claim 8, wherein the optical radiation is laser radiation in a visible spectrum.

19. The method of claim 11, wherein the radiation power is increased by a factor of approximately 2 to approximately 20.